

Attorney Docket No. P08430-US3

**AMENDMENTS TO THE CLAIMS**

This listing of claims replaces all prior versions and listings of claims in the application.

**Listing of Claims**

1-20. (Canceled)

~~21.~~ (Previously Presented) A method for including Frame Time Indication for cell searching in a wireless communications system, said method comprising:

transmitting by a mobile station, in each slot of a frame a primary synchronization code and a secondary synchronization code, said secondary synchronization code comprising  $\text{Log } 2(N_{\text{ssc}})$  bits of information to be used for a long code indication; and

modulating said secondary synchronization code by one of  $N_{\text{mod}}$  valid sequences.

*El Cont.* ~~22.~~ (Previously Presented) The method of claim ~~21~~, wherein said primary synchronization code of said secondary synchronization code are transmitted at substantially the same time.

~~23.~~ (Previously Presented) The method of claim ~~21~~, wherein said  $N_{\text{mod}}$  value is greater than one.

~~24.~~ (Currently Amended) ~~The method of claim 21, A method of including~~ Frame Time Indication for cell searching in a wireless communications system, said method comprising:

transmitting by a mobile station, in each slot of a frame, a primary synchronization code and a secondary synchronization code, said secondary synchronization code comprising  $\text{Log } 2(N_{\text{ssc}})$  bits of information to be used for a long code indication; and

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modulating the secondary synchronization code by one of Nmod valid sequences;

wherein the following properties ~~need to~~ must be satisfied if said the Nmod value is greater than one:

~~each said the~~ secondary synchronization code has sufficient cross-correlation properties; and

no cyclic shift of a valid modulating sequence can result in another valid modulating sequence.

4  
25. (Previously Presented) The method of claim 21, wherein said secondary synchronization codes are the same in each slot.

5  
26. (Previously Presented) The method of claim 21, wherein said wireless communication system is a WCDMA communication system.

7  
27. (Previously Presented) A method for including Frame Time Indication for cell searching by a mobile station, said method comprising:

transmitting, by a mobile station, in each frame, a sequence of about 16 secondary synchronization codes, said secondary synchronization codes comprising Log2 (Nssc\_seq) bits of information to be used to obtain a long code indication; and

modulating said secondary synchronization code by one of Nmod valid sequences.

4  
28. (Previously Presented) The method of claim 27, wherein said sequence of about 16 secondary synchronization codes repeats in each frame.

9  
29. (Previously Presented) The method of claim 27, wherein each said secondary synchronization code is unique.

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<sup>10</sup>  
~~30.~~ (Previously Presented) The method of claim ~~27~~<sup>7</sup>, wherein each said secondary synchronization code is unique and further has auto correlation and cross correlation properties.

<sup>11</sup>  
~~31.~~ (Previously Presented) The method of claim ~~27~~<sup>7</sup>, further comprising:  
finding a valid secondary synchronization code sequence; and  
determining a frame timing indication based on said valid secondary synchronization code.

*Cl Cont.* <sup>12</sup>  
~~32.~~ (Previously Presented) The method of claim ~~27~~<sup>7</sup>, wherein said long code indication can have 65,536 different values.

<sup>13</sup>  
~~33.~~ (Previously Presented) A method for facilitating cell searches in a cellular communications system, comprising:  
generating, by a base station, an identifying code set;  
transmitting, by said base station, at least one code word included in said identifying code set, said identifying code set comprising a plurality of code words each including a plurality of symbols taken from a set of short codes, each code word of said plurality of code words defined such that no symbol-wise cyclic shift of said each code word produces a valid code word.

<sup>14</sup>  
~~34.~~ (Currently Amended) The method of Claim ~~33~~<sup>13</sup>, wherein said plurality of code words comprises a plurality of Q-ary code words, and said set of short codes comprises a set of Q short codes.

<sup>15</sup>  
~~35.~~ (Previously Presented) The method of Claim ~~34~~<sup>14</sup>, wherein said plurality of Q-ary code words comprises a plurality of length M Q-ary code symbols.

<sup>16</sup>  
~~36.~~ (Previously Presented) The method of claim ~~35~~<sup>13</sup>, wherein said identifying code is formed by concatenating an inner and out code.

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~~17~~  
~~37~~. (Previously Presented) The method of claim ~~16~~ 36, wherein said inner code comprises a tailbiting trellis code.

~~18~~  
~~38~~. (Previously Presented) The method of claim ~~16~~ 38, wherein said outer code comprises a binary code.

~~19~~  
~~39~~. (Previously Presented) The method of claim ~~17~~ 37, wherein said tailbiting trellis code comprises an orthogonal trellis code.

~~20~~  
~~40~~. (Previously Presented) The method of claim ~~17~~ 37, wherein said tailbiting trellis code comprises a superorthogonal trellis code.

~~21~~  
~~41~~. (Previously Presented) The method of Claim ~~14~~ 34, wherein the short codes within the set of Q short codes are orthogonal short codes.

~~22~~  
~~42~~. (Previously Presented) A method for a mobile station to decode an identifying code transmitted from a base station in a CDMA cellular communications system, comprising the steps of:

collecting k times M consecutive symbols, said M consecutive symbols comprising said identifying code;

calculating a combined likelihood value for said collected k times M consecutive symbols, thereby producing a set of M consecutive symbols;

computing a correlation between each of L code words and each of M cyclic shifts of said sets of M combined likelihood values; and

storing a code word and number of cyclical shifts made that produced a highest amount of correlation in the computing step.

~~23~~  
~~43~~. (Previously Presented) The method of Claim ~~22~~ 42, wherein said number of cyclical shifts made indicate a frame timing for said identifying code.

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<sup>24</sup>  
~~44~~. (Previously Presented) The method of Claim <sup>23</sup>~~42~~, further comprising the step of outputting an identity of said stored code word.

<sup>25</sup>  
~~45~~. (Previously Presented) A method for a mobile station to decode an identifying code transmitted from a base station in a CDMA cellular communications system, comprising the steps of:

collecting k times M consecutive symbols, said M consecutive symbols comprising said identifying code;

calculating a combined likelihood value for said collected k times M consecutive symbols, thereby producing a set of M consecutive symbols;

computing a correlation between said set of M combined likelihood values and each of M cyclic shifts of said L code words; and

storing a code word and number of cyclical shifts made that produced a highest amount of correlation in the computing step.

<sup>26</sup>  
~~46~~. (Previously Presented) The method of Claim <sup>25</sup>~~45~~, wherein said number of cyclical shifts made indicate a frame timing for said identifying code.

<sup>27</sup>  
~~47~~. (Previously Presented) The method of Claim <sup>25</sup>~~46~~, further comprising the step of outputting an identity of said stored code word.